

Basic Principles of Moonshot R&D Program

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The Council for Science, Technology and Innovation

1 Purposes of the Program

While Japan faces many difficult issues such as declining birthrate and aging population, large-scale natural disasters, and global warming, science and technology need to solve those issues and create the bright future society.

Under these circumstances, ImPACT program was established in fiscal 2013 as a new research and development program to tackle difficult issues without fear of failure and to create future growth. ImPACT was a five-year trial program.

The research and development targeted by ImPACT was high-risk and high-impact and was expected to create a large impact on industry and society, but such a high-risk R&D does not always succeed. ImPACT was unique because it nominated talented applicants with challenging concepts, ideas and challenging spirits as program managers (PM), and gave them authorities to manage the research and development.

Targeting high-risk, high-impact research and development that could not be dealt with in conventional national programs, PM integrated various knowledge and ideas, crossing the boundaries of existing organizations and research areas. While some great research results were obtained in a very short time, on the other hand there were also cases that lack of novelty to anticipate the creation of future disruptive innovations has been seen. It has been pointed out that its international collaboration

was not sufficient. Therefore, there is a need for further systematic improvement.

US, Europe and China aim to create disruptive innovation to realize ambitious ideas and solve difficult social issues. They are aggressively promoting high-risk, high-impact and challenging R&D with vast investment.

Furthermore, in the R & D management method, they are aiming to create an open innovation platform that emphasizes on internationality and speed, while bringing together the wisdom of leading researchers from all over the world, and adopting various business ideas.

The Moonshot R&D Program aims to create destructive innovation from Japan and the innovation will be based on ideas that will not be just an extension of conventional technology.

- ① Setting ambitious targets (Moonshot Targets) that attract people, to solve future social issues etc., under the direction of researchers who lead international leading-edge researches
- ② Moreover, in view of the situation where various knowledge and ideas in the basic research stage are applied to industry and society speedy, and destructive innovation is being generated in various fields today, actively promote challenging research and development to maximize the Japanese basic research potential, and lead to discovering and fostering innovative research results while allowing failures
- ③ While constantly adopting the R & D trends in the world, we will renovate the system in a flexible way reviewing the entire related R & D, and build the best

research support system. Also, in anticipation of future commercialization, thoroughly implement the open and close strategy

Under the Council for Science, Technology and Innovation (CSTI), all relevant government agencies will promote R & D together.

Japan Science and Technology Agency (JST) and New Energy and Industrial Technology Development Organization (NEDO) carry out operations related to such challenging research and development. They will set up funds for the Moonshot R & D Program.

2 Basic Framework of the Program

The Cabinet Office, the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and the Ministry of Economy, Trade and Industry (METI) will promote research and development in collaboration in the framework below.

- (1) The CSTI will determine the Moonshot targets that the program should aim for, based on the opinions of outside experts. CSTI members will advise from a broad perspective on the promotion of the whole system towards the achievement of the Moonshot Targets.

- (2) The Cabinet Office, in consultation with MEXT and METI, will conduct the following, while listening to the opinions of CSTI members.
 - Propose the Moonshot Targets
 - Establish a system to promote related research and development as a whole with related ministries (establish related ministries council)
 - Determine guidelines for selection of PMs, mid-term evaluation, end-of-term evaluation etc.

- Promote related research and development strategically to achieve the Moonshot targets based on the discussions at the related ministries council

(3) MEXT and METI do the following.

- In cooperation with other relevant ministries and agencies, in order to achieve the Moonshot targets, formulate an R & D concept that defines areas in which challenging R & D will be promoted.
- In cooperation with the Cabinet Office, strategically and integrally promote related research and development, with the aim of achieving the Moonshot targets, based on the discussions at the related ministries council.
- Instruct JST and NEDO

(4) JST and NEDO are responsible for carrying out research and development in order to achieve the Moonshot targets.

- Assign PMs to manage research and development
- Establish a R & D promotion system that includes R & D implementation and the accompanying survey and analysis functions, etc.
- In cooperation with the Cabinet Office, MEXT and METI, based on the discussions at the related ministries council, strategically and integrally promote related research and development
- Progress management of R & D including mid-term evaluation and end evaluation

(5) The Cabinet Office will coordinate with MEXT and METI to separately determine the details of the operation of this program.